

WHAT IS CLAIMED IS:

1. A scrubbing product comprising:
a liquid absorbent structure comprising a plurality of fibrous cellulosic webs, the absorbent structure having a thickness; and
a plurality of apertures extending at least partially through the thickness of the absorbent structure, the apertures having a diameter of less than about 10 mm.
2. A scrubbing product as defined in claim 1, wherein the apertures have a diameter of from about 0.5 mm to about 5 mm.
3. A scrubbing product as defined in claim 1, wherein the apertures are present in the absorbent structure in an amount from about 1 aperture per square inch to about 30 apertures per square inch.
4. A scrubbing product as defined in claim 1, wherein the apertures extend through at least 10% of the thickness of the absorbent structure.
5. A scrubbing product as defined in claim 1, wherein the apertures extend through at least 10% of the thickness of the absorbent structure but less than about 90% of the thickness.
6. A scrubbing product as defined in claim 1, wherein the apertures extend through at least 10% of the thickness of the absorbent structure but less than about 50% of the thickness.
7. A scrubbing product as defined in claim 1, wherein the apertures have a depth that is not uniform in relation to one another.
8. A scrubbing product as defined in claim 1, wherein the scrubbing product includes at least one layer comprising a thermally bondable material, the thermally bondable material having been heated during formation of the apertures causing the thermally bondable material to bond to adjacent layers.
9. A scrubbing product as defined in claim 1, wherein the apertures are formed into one side of the absorbent structure.
10. A scrubbing product as defined in claim 1, wherein the apertures are formed into opposite sides of the absorbent structure.
11. A scrubbing product as defined in claim 1, wherein the absorbent structure further comprises a cover wrapped around the plurality of fibrous webs.

12. A scrubbing product as defined in claim 1, wherein the apertures form passages in the absorbent structure, the passages containing a chemical additive.

13. A scrubbing product as defined in claim 12, wherein the chemical additive comprises a soap or a detergent.

14. A scrubbing product as defined in claim 1, wherein the apertures have different diameters.

15. A scrubbing product as defined in claim 1, wherein the fibrous cellulosic webs comprise paper webs.

16. A scrubbing product as defined in claim 1, wherein the fibrous cellulosic webs comprise uncreped, through-air dried webs.

17. A scrubbing product as defined in claim 1, wherein the fibrous cellulosic webs comprise airlaid webs, coform webs, hydroknitted webs, bonded carded webs, or mixtures thereof.

18. A scrubbing product as defined in claim 1, further comprising an abrasive layer secured to one side of the absorbent structure, the abrasive layer comprising polymeric fibers in a non-uniform distribution.

19. A scrubbing product as defined in claim 18, wherein the polymeric fibers are made from a material selected from the group consisting of polypropylene, polyethylene, polyester, polystyrene, polyamide, polyvinylidene, polyvinyl chloride, polyurethane, polyurea, and copolymers thereof.

20. A scrubbing product as defined in claim 18, wherein the abrasive layer comprises a meltspun web.

21. A scrubbing product as defined in claim 18, wherein the abrasive layer comprises a meltblown web.

22. A scrubbing product as defined in claim 15, wherein the liquid absorbent structure contains at least 8 fibrous webs.

23. A scrubbing product as defined in claim 15, wherein the liquid absorbent structure contains at least 12 fibrous webs.

24. A scrubbing product as defined in claim 15, wherein the paper webs contain at least 5% by weight high yield fibers.

25. A scrubbing product as defined in claim 18, wherein the polymeric fibers have a diameter of at least 40 microns.

26. A scrubbing product as defined in claim 1, wherein one set of apertures are formed into one side of the absorbent structure while a second set of apertures are formed into an opposite side of the absorbent structure, the apertures of the first set being positioned in the Z-direction offset from the apertures of the second set.

27. A scrubbing product as defined in claim 26, wherein the first set of apertures and the second set of apertures only extend partially through the thickness of the absorbent structure.

28. A scrubbing product as defined in claim 18, wherein the apertures also extend through the abrasive layer.

29. A scrubbing product as defined in claim 1, wherein the fibrous cellulosic webs contained in the absorbent structure are adhered together by an adhesive material.

30. A scrubbing product as defined in claim 1, wherein the absorbent structure includes or is adjacent to at least two layers of a thermally bondable material, the two layers being ultrasonically bonded together within the apertures.

31. A scrubbing product as defined in claim 1, wherein at least certain of the apertures receive a thread for forming stitches through the absorbent structure.

32. A scrubbing product as defined in claim 31, wherein the absorbent structure includes a perimeter and wherein the stitches are located only along the perimeter of the absorbent structure.

33. A scrubbing product comprising:
a liquid absorbent structure comprising a plurality of fibrous cellulosic webs, the liquid absorbent structure including at least 8 layers of the webs, the absorbent structure having a thickness; and

a plurality of apertures extending at least partially through the thickness of the absorbent structure, the apertures having a diameter of from about 0.5 mm to about 10 mm, the apertures being present at a density of from about 1 aperture per square inch to about 30 apertures per square inch.

34. A scrubbing product as defined in claim 33, wherein the apertures extend through at least 50% of the thickness of the absorbent structure.

35. A scrubbing product as defined in claim 33, wherein the apertures extend through at least 90% of the thickness of the absorbent structure.

36. A scrubbing product as defined in claim 33, wherein the apertures are formed into one side of the absorbent structure.

37. A scrubbing product as defined in claim 33, wherein the apertures are formed into opposite sides of the absorbent structure.

38. A scrubbing product as defined in claim 33, wherein the absorbent structure further comprises a cover wrapped around the plurality of fibrous webs.

39. A scrubbing product as defined in claim 33, wherein the apertures form passages in the absorbent structure, the passages containing a chemical additive.

40. A scrubbing product as defined in claim 39, wherein the chemical additive comprises a soap, a detergent, a buffering agent, an antimicrobial agent, a skin wellness agent, a lotion, a medication, a polishing agent, or a mixture thereof.

41. A scrubbing product as defined in claim 33, wherein the fibrous cellulosic webs comprise uncreped, through-air dried webs.

42. A scrubbing product as defined in claim 33, further comprising an abrasive layer secured to one side of the absorbent structure, the abrasive layer comprising polymeric fibers in a non-uniform distribution.

43. A scrubbing product as defined in claim 42, wherein the abrasive layer comprises a meltspun web.

44. A scrubbing product as defined in claim 42, wherein the abrasive layer comprises a meltblown web.

45. A scrubbing product as defined in claim 33, wherein the paper webs contain at least 5% by weight high yield fibers.

46. A scrubbing product as defined in claim 33, wherein one set of apertures are formed into one side of the absorbent structure while a second set of apertures are formed into an opposite side of the absorbent structure, the apertures of the first set being positioned in the Z-direction offset from the apertures of the second set.

47. A scrubbing product as defined in claim 46, wherein the first set of apertures and the second set of apertures only extend partially through the thickness of the absorbent structure.

48. A scrubbing product as defined in claim 33, wherein the fibrous cellulosic webs contained in the absorbent structure are adhered together by an adhesive material.

49. A scrubbing product as defined in claim 33, wherein the absorbent structure includes or is adjacent to at least two layers of a thermally bondable material, the two layers being ultrasonically or thermally bonded together within the apertures.

50. A scrubbing product as defined in claim 33, further comprising a plurality of stitches extending through the absorbent structure.

51. A scrubbing product as defined in claim 33, wherein the fibrous cellulosic webs comprise bonded carded webs.

52. A scrubbing product comprising:
a liquid absorbent structure comprising a plurality of fibrous cellulosic webs, the liquid absorbent structure including at least 8 layers of the webs, the absorbent structure having a thickness;

a plurality of apertures extending at least partially through the thickness of the absorbent structure, the apertures having a diameter of from about 0.5 mm to about 10 mm, the apertures being present at a density of from about 1 aperture per square inch to about 30 apertures per square inch; and

an abrasive layer secured to at least one side of the absorbent structure, the abrasive layer comprising polymeric fibers in a non-uniform distribution, the abrasive layer comprising a meltspun web.

53. A scrubbing product as defined in claim 52, wherein the fibrous cellulosic webs comprise uncreped, through-air dried webs.

54. A scrubbing product as defined in claim 52, wherein the abrasive layer comprises a meltspun web.

55. A scrubbing product as defined in claim 52, wherein the abrasive layer comprises a meltblown web.

56. A scrubbing product as defined in claim 52, wherein the liquid absorbent structure contains at least 12 layers.

57. A scrubbing product as defined in claim 52, wherein the liquid absorbent structure contains at least 18 layers.

58. A scrubbing product as defined in claim 52, wherein one set of apertures are formed into one side of the absorbent structure while a second set of apertures are formed into an opposite side of the absorbent structure, the apertures of the first set being positioned in the Z-direction offset from the apertures of the second set.

59. A scrubbing product as defined in claim 58, wherein the first set of apertures and the second set of apertures only extend partially through the thickness of the absorbent structure.

60. A scrubbing product as defined in claim 52, wherein the apertures also extend through the abrasive layer.

61. A scrubbing product as defined in claim 52, wherein the fibrous cellulosic webs contained in the absorbent structure are adhered together by an adhesive material.

62. A scrubbing product as defined in claim 52, wherein the absorbent structure includes or is adjacent to at least two layers of a thermally bondable material, the two layers being ultrasonically bonded together within the apertures.

63. A scrubbing product as defined in claim 62, wherein at least one layer of the thermally bondable material comprises the abrasive layer.

64. A scrubbing product as defined in claim 63, wherein the second layer of the thermally bondable material comprises a fibrous layer secured to the absorbent structure on a side of the absorbent structure opposite a side of the absorbent structure adjacent to the abrasive layer.